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FQD13N10LTM

N-Channel 100-V (D-S) MOSFET

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Features

- $R_{DS(ON)} \leqq 100m\Omega$ @VGS=10V
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current

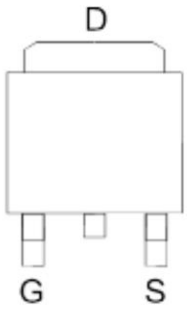
Application

- Power Management in Note book
- DC/DC Converter
- Load Switch
- LCD Display inverter

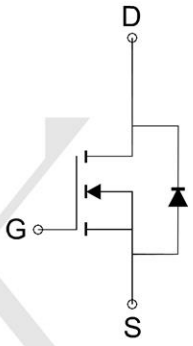
Package and Pin Configuration

(TO-252-3L)

Top View



Circuit diagram



N-Channel MOSFET

Marking:

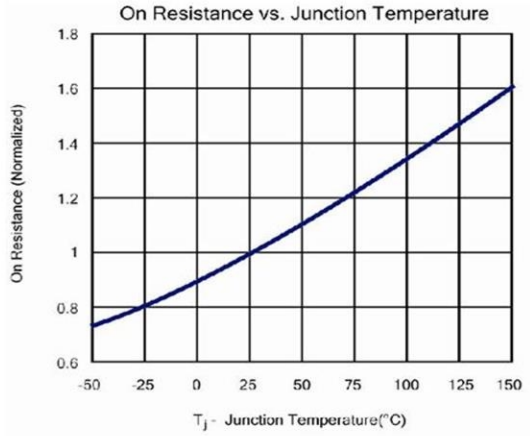
Absolute Maximum Ratings (T_C=25℃ unless otherwise specified)

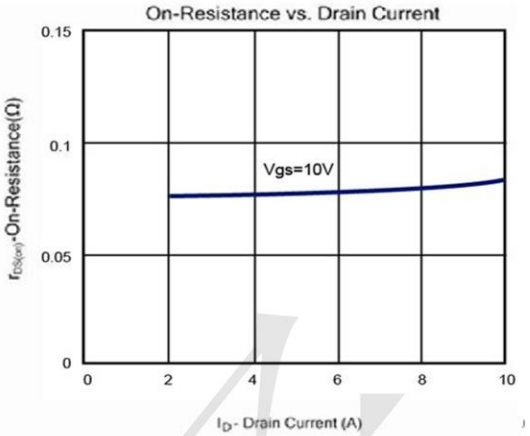
Parameter		Symbol	Maximum Ratings	Unit
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_C=25℃	I_D	14.7	A
	T_C=70℃		13.6	
Pulsed Drain Current		I_{DM}	59	A
Maximum Power Dissipation	T_C=25℃	P_D	34.7	W
	T_C=70℃		22.2	
Junction and Storage Temperature Range		TJ, Tstg	-55 to 150	℃
Thermal Resistance-Junction to Case *		$R_{\theta JC}$	3.6	℃/W

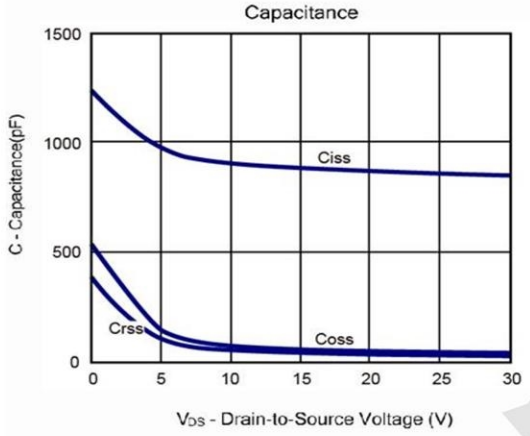
Electrical Characteristics (T_J=25℃ unless otherwise specified)

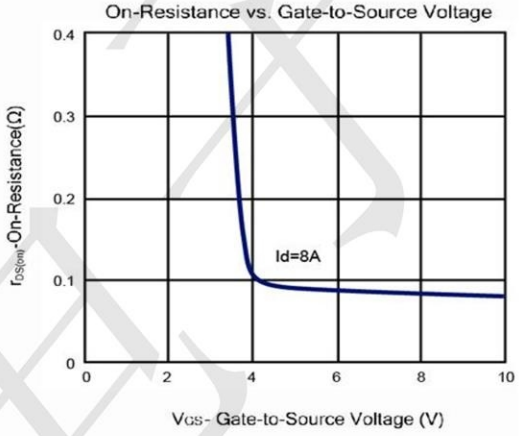
Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250μA	100			V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250μA	1		3	V
I_{GSS}	Gate Leakage Current	V_{DS}=0V, V_{GS}=±20V			±100	nA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=80V, V_{GS}=0V			1	μA
$R_{DS(ON)}$	Drain-Source On-Resistance [a]	V_{GS}=10V, I_D= 8A		80	100	mΩ
V_{SD}	Diode Forward Voltage	I_S=8A, V_{GS}=0V		0.9	1.2	V
DYNAMIC						
Qg	Total Gate Charge	V_{DS}=80V, V_{GS}=10V, I_D=10A		24		nC
Qg	Total Gate Charge	V_{DS}=80V, V_{GS}=4.5V, I_D=10A		13		
Qgs	Gate-Source Charge			4.6		
Qgd	Gate-Drain Charge			7.6		
Ciss	Input Capacitance	V_{DS}=15V, V_{GS}=0V,f=1MHz		882		pF
Coss	Output Capacitance			57		
Crss	Reverse Transfer Capacitance			44		
$t_{d(on)}$	Turn-On Delay Time	V_{DS}=50V, R_L =5Ω, V_{GS}=10V, R_G=1Ω I_D=1A		14		ns
tr	Turn-On Rise Time			33		
$t_{d(off)}$	Turn-Off Delay Time			39		
tf	Turn-Off Fall Time			5		

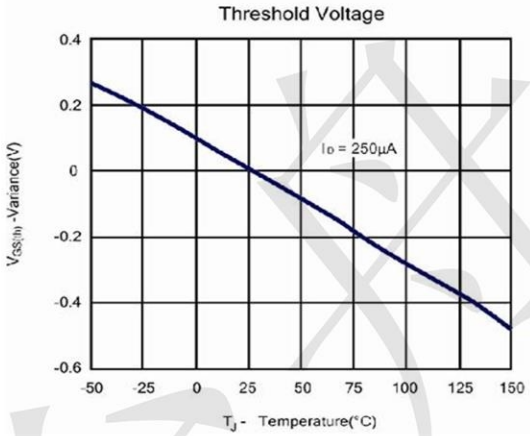
Typical Electrical and Thermal Characteristic Curves

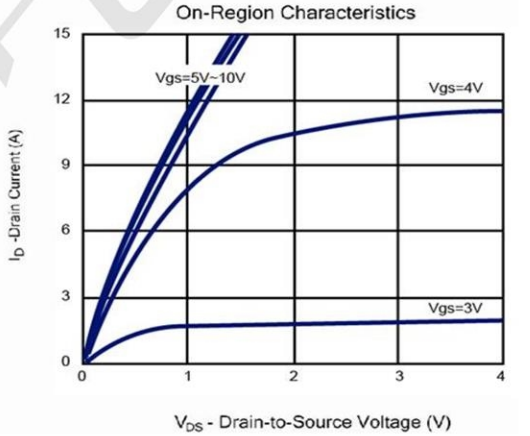




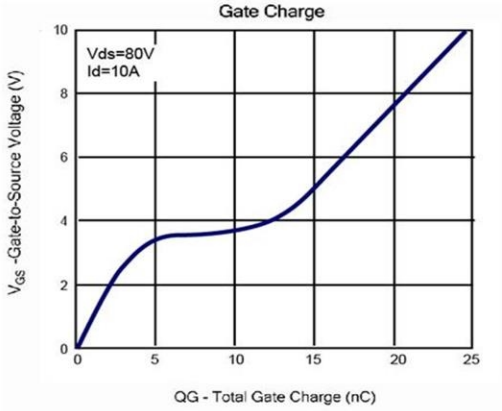




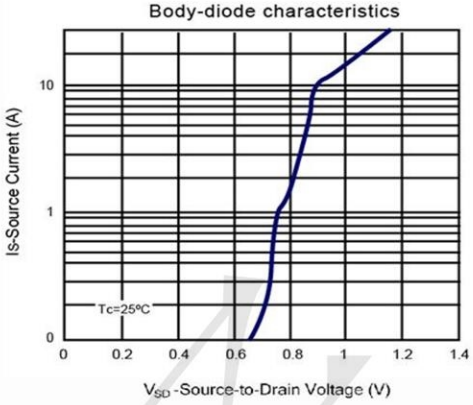




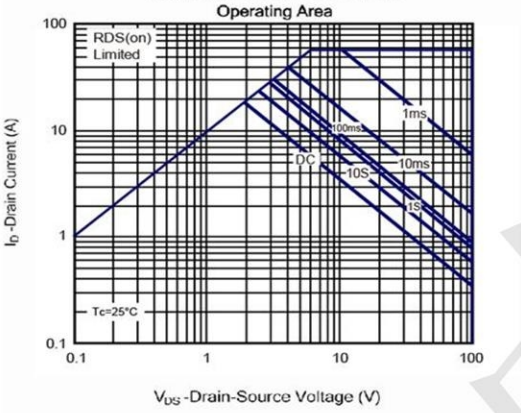
Gate Charge



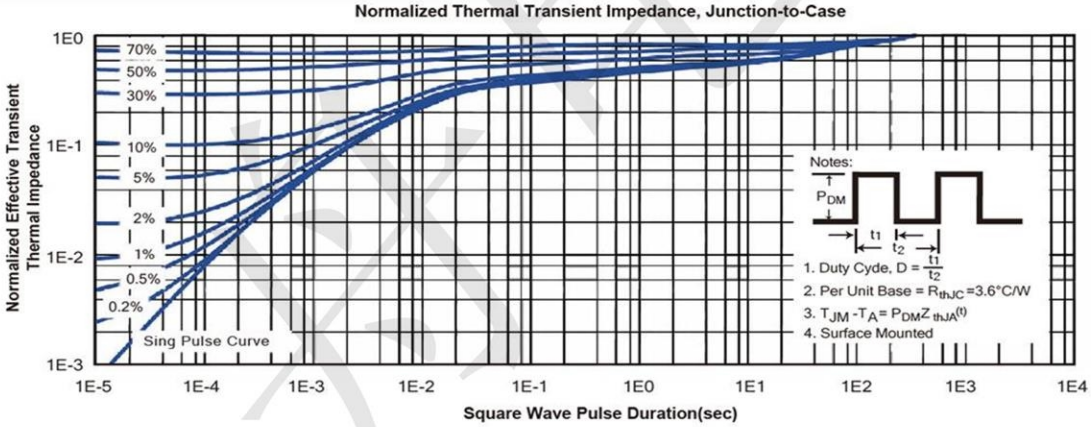
Body-diode characteristics



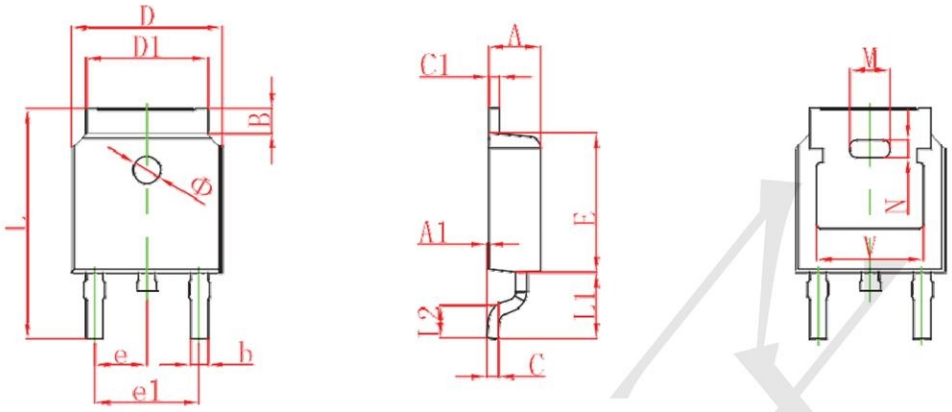
Maximum Forward Biased Safe Operating Area



Normalized Thermal Transient Impedance, Junction-to-Case



TO252 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.380	0.087	0.094
A1	0.000	0.100	0.000	0.004
B	0.800	1.400	0.031	0.055
b	0.710	0.810	0.028	0.032
c	0.460	0.560	0.018	0.022
c1	0.460	0.560	0.018	0.022
D	6.500	6.700	0.256	0.264
D1	5.130	5.460	0.202	0.215
E	6.000	6.200	0.236	0.244
e	2.286 TYP.		0.090 TYP.	
e1	4.327	4.727	0.170	0.186
M	1.778REF.		0.070REF.	
N	0.762REF.		0.018REF.	
L	9.800	10.400	0.386	0.409
L1	2.9REF.		0.114REF.	
L2	1.400	1.700	0.055	0.067
V	4.830 REF.		0.190 REF.	
Ɪ	1.100	1.300	0.043	0.0±1

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